

CLAIMS

1. A mobile communication system in which variable rate
5 transmission is performed over a downlink radio channel among a base station control apparatus, a radio base station, and a mobile station, the radio base station comprising:

a transmission rate determining part for determining a transmission rate in accordance with a size of transmission data to the mobile station; and

10 a transmission power changing part for changing a transmission power of the transmission data in accordance with an error correction gain difference depending on the determined transmission rate.

2. The mobile communication system according to claim 1, wherein the transmission power changing part reduces the transmission
15 power when the transmission rate is large, and increases the transmission power when the transmission rate is small.

3. The mobile communication system according to claim 1 or 2, wherein variable rate control is performed by attaching rate information specifying a transmission rate by each transmission frame in accordance
20 with the transmission data size among the base station control apparatus, the radio base station and the mobile station.

4. The mobile communication system according to claim 1 or 2, wherein the mobile station includes a transmission rate determining part for estimating a transmission rate from a power distribution of a received signal.

25 5. The mobile communication system according to any of claims 1 to 4, that is applicable to a CDMA (Code Division Multiple Access) radio network in which variable rate transmission is performed over a downlink channel.

6. A radio base station that is allocated between a base station control apparatus and a mobile station, wherein variable rate transmission is performed over a downlink radio channel between the base station control apparatus and the mobile station, the radio base station comprising:

5 a transmission rate determining part for determining a transmission rate in accordance with a size of transmission data to the mobile station; and

a transmission power changing part for determining a transmission power of the transmission data in accordance with an error correction gain difference depending on the determined transmission rate.

10 7. The radio base station according to claim 6, wherein the transmission power changing part reduces the transmission power when the transmission rate is large, and increases the transmission power when the transmission rate is small.

15 8. The radio base station according to claim 6 or 7, further comprising:

a transmission frame producing part for encoding the transmission data into a transmission frame; and

20 a transmitting part for transmitting the determined transmission rate and the encoded transmission frame in accordance with the determined transmission power.

9. The radio base station according to any of claims 6 to 8, that is applicable to a CDMA (Code Division Multiple Access) radio network in which variable rate transmission is performed over a downlink radio channel.

25 10. A transmission power control method for a mobile communication system in which variable rate transmission is performed over a downlink radio channel among a base station control apparatus, a radio base station and a mobile station, the method comprising the steps of:

determining a transmission rate in accordance with a size of

transmission data to the mobile station; and

determining a transmission power of the transmission data in accordance with an error correction gain difference depending on the determined transmission rate.

5 11. The transmission power control method according to claim 10, wherein the step of determining the transmission power is carried out with reference to one or more tables prepared in advance that show the relations among the transmission data size, the error correction gain difference, and a change amount of the transmission power.

10 12. The transmission power control method according to claim 10 or 11, wherein the step of determining the transmission power reduces the transmission power when the transmission rate is large, and increases the transmission power when the transmission rate is small.

15 13. The transmission power control method according to any of claims 10 to 12, wherein variable rate control is performed by attaching rate information specifying a transmission rate by each transmission frame in accordance with the transmission data size among the base station control apparatus, the radio base station, and the mobile station.

20 14. The transmission power control method according to any of claims 10 to 12, wherein a transmission rate is estimated at the mobile station from a power distribution of a received signal.

25 15. The transmission power control method according to any of claims 10 to 14, that is applicable to a CDMA (Code Division Multiple Access) radio network in which variable rate transmission is performed over a downlink radio channel.

16. A program for executing a transmission power control method in which variable rate transmission is performed over a downlink radio channel among a base station control apparatus, a radio base station

and a mobile station, the program being executed in a computer at the radio base station, the program for making the computer to perform a processing for determining:

5 a transmission rate in accordance with a size of transmission data to the mobile station; and

 a transmission power of transmission data in accordance with an error correction gain difference depending on the determined transmission rate.